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ABSTRACT

This paper analyzes ways in which the new, relatively cheap, user friendly technology and associated software is changing the way that accounting is being taught. Techniques that have been available, in principle, for years, are now widely available. The newer techniques stress decision making for planning, and, to a lesser extent, control, in contrast to the older technology which, in the accounting context, is more appropriate for transaction processing and control. The impact on the curriculum, the teaching methods, and other pedagogic issues are discussed. The problems of introducing the new equipment are outlined and the benefits are assessed. (Author)

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# The Impact of New Technology on the Accounting Curriculum

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## ABSTRACT

This paper analyses the way that the new, relatively cheap, user friendly, technology and the associated software is changing the way that accounting is being taught. Techniques that have been available, in principle, for years , are now widely available. The newer techniques stress decision making for planning and to a lesser extent, control, in contrast to the older technology which in the accounting context is more appropriate for transaction processing and control. The impact on the curriculum, the teaching methods and other pedagogic issues are discussed. The problems of introducing the new equipment are outlined and the benefits are assessed.

## INTRODUCTION

It is important to stress that the advent of microcomputers means that techniques, such as financial modelling, that have been available in principle, for years, are now widely available. The old technology, mainframe computers, and the associated software, were relatively scarce, costly and cumbersome to use, thereby restricting access to these techniques. Thus it is not that anything new, ie conceptually impossible twenty years ago, is capable of being done, but rather it is capable of being done by the many rather than the few.

Now with the availability of application software, anyone can use a computer to perform complex calculations, with minimal training and relatively cheap equipment. The newer techniques such as spreadsheets, database management systems, graphics, expert systems etc, rendered possible by the microcomputer, stress decision making for planning, and to a lesser extent control. It is an important distinction to make because the cheap technology is only an enabling factor, it is not importatnt as a thing in itself. The different types of software mean that completely different uses will be made of the microcomputer, as opposed to the mainframe.

Compared to mainframe computers where users may assume any one of a number of user roles such as operators, data entry clerks, analysts, programmers and users of reports, personal computer users in accounting will need instruction in the theory and practice of all these tasks.

## IMPACT ON THE ACCOUNTING CURRICULUM

This means that the design of information systems will become an essential part of the curriculum, in addition to the mainstream accounting subjects. Topics would include such issues as system



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specification, the design of screen layout, format of reports, data validation and the control and security of computer systems. Systems design and analysis is a very difficult course to teach in a classroom situation, relying so heavily as it does on practical experience, knowledge of user behaviour, etc; areas in which students have little prior practical experience. It implies teaching methods that give the students experiences in different user roles. Films on the problems arising from inadequate specification or security can illustrate the issues more graphically than lectures.

In relation to the core accounting subjects, the new technology changes the educational methods. Spreadsheets have a wide number of applications in Finance, Financial and Management Accounting. It will be possible to set larger more realistic case studies, and to devote most of the class time to discussing the issues that arise, the assumptions, the limitations of the methods, etc rather than going over the calculations.

Technology also has an effect on learning as a social process. Given that larger, more realistic case studies can be set and that equipment may be in short supply, the opportunity exists to set group work. Students thereby learn to work in teams rather than individually and competitively. They learn a wider range of social skills than are currently fostered in accounting courses. Project work requires them to cooperate with each other, divide the tasks, coordinate, lead and discuss with one another. This type of learning situation makes them less dependent on the teacher and more dependent on each other. Most learning is in fact a social process, but the change in technology makes this more obvious.

However students do need help in this, to understand the generalisability of their experiences - that they are not unique experiences peculiar to them. It becomes possible thereby to teach them some of the problems involved in project management, eg to see why some groups had crises and others did not and what could be done to minimise their effects or to avoid their occurrence altogether.

There are a number of interesting ways that class assignments may be used. A series of exercises may be set that make use of the previous results as a building block. Projects, to be done as a team, may be set. One of the draw backs of this type of work is that there may not be the time to give students adequate feedback about their work.

One way round this is for all the groups in the class to make copies of their work, which they distribute to their colleagues and the assignment is for them as the senior manager, to review the plans, budgets etc of all the groups, including their own. This requires them to assume a different role and to study other

people's work and analyse them critically and to see the implications for their own work. Emphasis should be given to criticising their own work. This type of assignment avoids the problem of how to assess an individual's contribution to the team. An individual assignment such as this gives each student the chance to participate as part of a team and to make his/her own assessment of the work. Most students said they learnt a lot by studying the way that other people tackled the problem.

The software that is available such as spreadsheets, database management systems, operational research techniques etc, are usually seen as decision support tools for managers. It is important that if they are to be used in this way that students appreciate the problems raised by the appropriateness of the data. If they are to be taught to become decision makers, they need to be given case material that is wide ranging, not simply numbers to manipulate. Too many exercises in decision making stress detached, calculative rationality rather than involvement and intuitive and inferential reasoning.

Another aspect of computer technology that should be mentioned is word processing. In Britain, students typically turn in hand written work which is often poorly presented and difficult to read. Undoubtedly, word processing (and the use of graphics) improves the presentation of the work (and reduces staff marking time), but from an educational point of view, there is another advantage that should be considered. Because it is so much easier for students to correct their work or even to add to it, the content as well as the form should also improve. The technology alters the way that people work. It is no longer necessary to leave writing up to the last. It can be done alongside other tasks, in the knowledge that it can be easily altered as they are going along.

Thus it is clear that the new technology is having some impact on the curriculum and that innovative methods of instruction and assessment follow on from these changes.

## PROBLEMS IN INTRODUCING NEW TECHNOLOGY

These changes are undoubtedly very expensive, both because of the cost of the hardware and software, and since business departments required few additional resources other than teaching staff, there is no mechanism within the budget for either capital expenditure or perhaps even more importantly, recurrent expenditure for running costs and maintenance.

The new technology is usually administered within the department rather than by the computer centre. This entails extra work for the staff involved. In addition, the lack of computer expertise among the staff teaching the core accounting courses and their uncertainty about the pedagogic benefits of introducing them into

the curriculum means that computer management and development typically falls unequally on the few who have this expertise.

THere are few formal incentives in terms of promotion and tenure to administer the computer facilities and even less to develop good computer based materials for other courses. Additional techniacl and administrative support is usually needed.

Not only is it costly in terms of staff time to acquire the technical skills and develop course material, the newer educational methods are also costly in terms of teaching time. They involve a higher degree of informal staff/student contact time, and additional running costs, eg computer availability beyond normal office hours, additional library resources etc. Thus the introduction of new technology raises questions about the University's ability to commit resources to staff training and development.

There is a contradiction here. Where as in industry and commerce, new technology is introduced to improve productivity/reduce costs, within the teaching function of the University, it raises the revenue requirements without incurring any obvious cash savings to the University. The public sector is bearing the cost of training students in the new technology for the benefit of the employers.

As accounting and business departments become more capital intensive and require more specialist skills, it can only accelerate the trend to reduce the number of institutions where these subjects are taught. ie it is likely to increase the mergers/closures of departments.

All these considerations show that the introduction of new technology in business and accounting departments meets severe constraints from the existing organisational structure and lack of finance. But it will be difficult to implement the new educational methods if these questions are not tackled.